

BIBIKOV, I.; DEREVYANKO, K.; KAZACHEKO, V.; KIRICHENKO, I.; KUCHER, N.;  
MACHUKHO, A.; NABATNIKOV, P.; SOKOLOV, B.; SIVOKON'YA, US, V.;  
SHCHIGALEV, V.; BURAVENKO, N.; KOVSHAROV, S.; SOKOLOV, S.;  
ZAGORUL'KO, M.; TSYBA, M.; FOMENKO, J.; LYAKHOVETSKIY, M.

Let us help farmers grow an abundant crop. Grazhd. av. no.3:3  
Mr '61. (MIRA 14:3)  
(Aeronautics in agriculture)

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CIA-RDP86-00513R000721220020-5

avoid this damage are described.

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CIA-RDP86-00513R000721220020-5"

KAZACHKOV, A.I., inzhener; KUROCHKIN, V.I., inzhener; MARCHENKO, Ye.A., kandidat tekhnicheskikh nauk.

Operating conditions for shunt switches in longitudinal compensation installations. Elek. sta. 28 no.2:56-60 F '57. (MLRA 10:4)  
(Electric power distribution) (Electric transformers)

KAZACHKOV, A.I., inzh. (Leningrad); KLIMOV, V.A., inzh. (Leningrad); POLYAK,  
G.I., inzh. (Leningrad)

Use of a calculating board in computing power systems with d.c.  
current transmission. Elektrichestvo no.9:11-14 S '60.

(MIRA 13:10)

(Electric power distribution)

L 13052-66 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) MJW/JD/HW

ACC NR: AP5027911 SOURCE CODE: UR/0133/65/000/011/1021/1023

AUTHOR: Sominskiy, Z. A.; El'bert, S. N.; Bisk, M. B.; Potopayev, A. P.; Kazachkov, B. M.; Borodin, A. I.; Chistyakov, V. G.

ORG: none

TITLE: Parameter refinement in the hot working of tubes made from Kh18N10T, 30KhGSA  
and Kh5M steels

SOURCE: Stal', no. 11, 1965, 1021-1023

TOPIC TAGS: tool steel, metal tube, plastic deformation

ABSTRACT: Optimum preheating schedules are established for the subsequent hot working of tubes made of Kh18N10T steel. Care was taken to hold the mandrel temperature below 600°C in order to preserve the useful tool life. Thermocouples were placed into various portions of the mandrel and the temperatures measured for varying conditions. All tubes were drawn to 100 m air blast, water-air spray mixture and water spray cooling was employed. A mixture of zinc oxide and graphite was used as a lubricant. Data are presented for tubes drawn to 40, 50, 60 and 70 m after various preheat temperatures (between 80 and 250°C) and for the cooling methods discussed above. Data on the change in mandrel temperature showed a large degree of variation (310 to 510°C) increasing with draw length and preheat temperature. The cooling efficiency also was

Cord 1/3

UDC: 621.774.39

L 13052-66

ACC NR: AP5027911

a significant factor, the highest cooling rate being achieved with water spray cooling. For Kh18N10T steel, the preheat temperature recommended was between 150-200°C. The other phase of the study dealt with the determination of optimum temperature intervals for the hot deformation of 30KhGSA and Kh5M steels. Mechanical property data were obtained in the form of dynamic bend resistance as a function of temperature of testing (ambient temperature to 700°C) for Kh5M and impact resistance as a function of temperature of testing (20-600°C) for 30KhGSA. Also the fracture appearance was analyzed in both cases. The plasticity of Kh5M steel increased up to the temperature range of 300-400°C where it remained constant and subsequently rose again. The transition from ductile to brittle fracture took place at temperatures of about 40-60°C. The explanation proffered for the retardation in rise of plasticity in the range 300-400°C was dislocation solute interactions (C and N especially). This Cottrell type cloud retarded the motion of dislocations. At higher temperatures, the ductility of the steel increased due to thermal activation assisting the release of dislocations from their C and N atmospheres. For 30KhGSA steel, the impact strength rose with temperature to 150°C where it reached a maximum at 150-200°C and subsequently dropped, reaching another peak at about 400°C. Thereafter, the drop became very sharp and at 500°C the value was the same as for room temperature. Above 550°C, a sharp rise in impact strength occurred as a function of temperature. Again Cottrell cloud was used to explain the leveling off of impact strength at 400-550°C. Alloying elements which combine chemically with the solute C and N atoms offset this behavior; this explains the higher

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L 23052-66

ACC MR: AP5027911

plastic properties of Kh5M. Considering the effect mentioned, it was concluded that the optimum working temperature interval for Kh5M should be 200-300°C, and 100-200°C for 30KhGSA. Thus the optimum preheating temperatures in the inductor should be 100-200°C and 60-120°C respectively. The tool life was considerably lengthened by following the above hot working parameters. Orig. art. has: 2 figures, 2 tables.

SUB CODE: 11/ SUBN DATE: 00/ ORIG REF: 002/ OTH REF: 002

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KAZACHKOV, B. V.

USSR/Mathematics - Group Theory

Jul/Aug 53

"Existence and Conjointness of Subgroups in a Finite Group," S. A. Chunikhin, Tomsk Mat Sbor, Vol 33 (75), No 1, pp 111-132

Weakens the conditions in the Silov-type theorems. Demonstrates two theorems on the sufficient and necessary criteria for the existence of subgroups and a theorem on the maximum subgroups of P-soluble groups. Cites related work of O. Ore ("Theory of Groups of Finite Order," Duke Math J. 5 (1939)). Cites the Soviet works of P. A. Gol'berg (1949), S. L. Edel'man (1951), and B. V. Kazachkov (1952). Presented 22 Aug 52.

271T84

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CIA-RDP86-00513R000721220020-5

KAZACHKOV, B. V. (Tomsk)

Schur - Zassenhau theorem for enumerable locally finite groups.  
Mat. sbor. 50 no.4:499-506 Ap '60. (MIRA 13:8)  
(Groups, Theory of)

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CIA-RDP86-00513R000721220020-5"

KAZACHKOV, B.V. (Tomsk)

Conditions for strong factorability of groups. Mat.sbor. 57  
no.3:323-332 Jl '62. (MIRA 15:8)  
(Groups, Theory of)

KAZACHKOV, B.V.

Finite  $\sqrt{n}$ -conjugation of groups. Dokl. AN SSSR 144 no.5:971-  
973 Je '62. (MIRA 15:6)

1. Tomskiy gosudarstvennyy pedagogicheskiy institut. Predstavлено  
akademikom A.I.Mal'tsevym.  
(Groups, Theory of)

KAZACHKOV, D.L.

Mechanization of the designing, copying and multiplying work.  
Biul.tekh.-ekon.inform. no.5:82-83 '61. (MIRA 14:6)  
(Copying process—Technological innovations)  
(Design, Industrial)

KAZACHKOV, D.L., inzh.

Electrographic copying and reproducing machines. Mekh.i avtom.proizv.  
17 no.9:44-47 S '63. (MIRA 16:10)

KAZACHKOV, David L'vovich; KRAINSKIY, A.I., red.; TELYASHOV,  
R.Kh., red.izd-va; GVIERTS, V.L., tekhn. red.

[Mekhanization of the preparation and copying processes  
of technical documentation] Mekhanizatsiya izgotovleniya i  
razmnozheniya tekhnicheskoi dokumentatsii. Leningrad,  
1963. 34 p. (Leningradskii dom nauchno-tekhnicheskoi pro-  
pagandy. Obmen peredovym opyтом. Seriya: Mekhanizatsiya in-  
zhenernogo i upravlencheskogo truda, no.2) (MIRA 16:11)  
(Photocopying processes)

KAZACHKOV, D.L.; TIMOFEEVSKIY, T.P., inzh., retsenzent

[Mechanization of structural design] Mekhanizatsiya  
proektno-konstruktorskikh rabot. Moskva, Mashinostroenie,  
1964. 179 p. (MIRA 17:8)

AUTHOR: Kazachkov, D. L. (Engineer)

TITLE: Mechanization of retrieving technical documents

SOURCE: Voprosy mehanizatsii i avtomatizatsii proizvodstva, no. 1, 1965 "70-4"

into 10 sectors or subclasses (transmission assemblies, comic sectors); each

A P P R O V E D

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CARD 1 OF 1



KAZACHKOV, D.L.

Mechanical copying of drawings by electrophotographic methods.  
Mashinostroitel' no.1:7-11 Ja '65. (MIRA 18:3)

ZILIST, Petr Sigizmundovich; KAZACHKOV, David L'vovich; DVORKIN,  
A.L., inzh., retsenzent; UTKIN, K.V., inzh., retsenzent  
VERDNIKOV, Ya.V., nauchn. red.; NIKITINA, M.I., red.

[Overall mechanization of planning and designing operations  
in shipbuilding] Kompleksnaia mekhanizatsiia proektiro-  
vaniia konstruktorskikh rabot v sudostroenii. Leningrad, Sud-  
stroenie, 1965. 315 p. (MIRA 18:12)

KAZACHKOV, G.

Handbarrow for carrying cans with foam powder. Pozh.delo 7 no.4:  
28 Ap '61. (MIRA 14:4)  
(Fire departments--Equipment and supplies)

KAZACHKOV, D.L., inzh.; NOVIKOVA, L.K., red.; SHILLING, V.A., red.  
1zd-va; BELOGUROVA, I.A., tekhn. red.

[Mechanization of the preparation and multiplication of blueprints and other technical documents] Mekhanizatsiya izgotovlenija i razmnожenija chertezhei i drugoi tekhnicheskoi dokumentatsii. Leningrad, 1962. 23 p. (Leningradskii dom nauchno-tehnicheskoi propagandy. Obmen peredovym opyтом. Seria: Organizatsiya i ekonomika proizvodstva, no.1) (MIRA 15:8)  
(Blueprinting)

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Kaz. BCIK v. J. P.

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CIA-RDP86-00513R000721220020-5"

S/123/59/000/010/053/068  
A004/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1959, No. 10, pp. 186-187, # 38656

AUTHORS: Khitrik, S. I., Kazachkov, I. P., Zavaluyev, I. F., Babkov, T. M.,  
Moshkevich, Ye. I.

TITLE: The Effects of Nonmetallic Impurities of Ferrochrome on the Quality  
of Stainless Steel ✓

PERIODICAL: Tekhn.-ekon. byul. Sovnarkhoz Zaporoshch. ekon. adm. r-na, 1958,  
No. 3, pp. 44-47

TEXT: The contents of nonmetallic impurities in carbon-free ferrochrome fluctuates within a wide range and principally is directly interdependent on the magnitude of Si-content in it. Si, lowering the solubility of O<sub>2</sub> in ferrochrome, combines with it and forms oxides. Holding the liquid ferrcchrome in the ladle under a vacuum ensures a liberation of the gases and leads to an intensive agitation of the metal. The continuous exchange of metal being in contact with slag promotes the oxidation of Si by slag oxides. The passing over into the slag of suspended nonmetallic impurities in the metal agitated and cooled by vacuum treat-

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S/123/59/000/010/053/068  
A004/A001

The Effects of Nonmetallic Impurities of Ferrochrome on the Quality of Stainless Steel

ment, is facilitated: In vacuum-treated ferrochrome the Si-content is considerably lowered and, correspondingly also that of the nonmetallic impurities (approximately 35%). Test ingots of the 2Kh13 (2Kh13) grade stainless steel, weighing 2.8 tons, were smelted in 20-ton electric furnaces from a fresh charge with additions of vacuum-treated and non-treated 2Kh13 (Kh13) grade ferrochrome to the nonreduced metal in amount of 25% of the melt weight. Vacuum-treated ferrochrome differs from the non-vacuum-treated by a lower content of nonmetallic impurities (on the average by 25%) and a somewhat higher Si-content (on the average by 0.12%). An analysis of the content of nonmetallic impurities in steel assays taken from the melt in the middle of the teeming, showed that the degree of contamination of ferrochrome by nonmetallic impurities affects also the purity of the steel, by 16% on the average. An increase of the Si-content in ferrochrome affects the degree of steel contamination with nonmetallic impurities. Si, introduced into steel, quickly oxidizes, and since the 2Kh13 grade steel is of a high ductility, it is difficult to float the impurities, which have been brought in by the ferrochrome and which were formed owing to Si-oxidation, into the slag. The

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SOV/128-58-12-4/21

AUTHORS: Levin, S.L., and Kazachkov, I.P.

TITLE: The Effect of Smelting and Deoxidation Technology on the Distribution of Sulfide Impurities in Open-Hearth Steel Castings (Vliyaniye tekhnologii vyplavki i raskisleniya na raspredeleniye sul'fidnykh vklyucheniy v otlivkakh iz mar-tenvskoy stali)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 12, pp 7 - 8 (USSR)

ABSTRACT: Higher mechanical properties and resistance to cracks in steel casts are ensured by the disorderly spacing of sulfide impurities in the alloy. In this connection, the effect of smelting and deoxidation technology on the character of the sulfide impurity spacing in "25 - 30L" grade steel was investigated. It was proved that the ferrous oxide content in the final slag has a direct effect on the grouping of the sulfide impurities, as the increased content of ferrous oxide prevents the chain-shaped grouping of such impurities, and reduces the critical aluminum concentration in the bath. It was proved by experiments that an aluminum addition to the metal stream in casting more effective-

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SOV/128-58-12-4/21  
The Effect of Smelting and Deoxidation Technology on the Distribution of  
Sulfide Impurities in Open-Hearth Steel Castings

ly ensures the necessary aluminum concentration than does an aluminum addition to the ladle. Satisfactory disorderly spacing of sulfide impurities was obtained by an aluminum addition of 400 g/t to the metal stream, or by adding 750 g/t aluminum to the ladle with an extra addition of 300 g/t to the metal stream. There are 4 graphs, 2 micro-photos and 1 table.

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ff.

NAZACHKOV, I.P., Cand Tech Sci --(disc) "Effect of vacuuming of  
non-carbonic ferrochromium <sup>up</sup> on its contamination with oxide <sup>UH-</sup>  
~~particles~~ <sup>in</sup> ~~solutions.~~" Dnepropetrovsk, 1959. 13 pp (Min of Higher Education  
USSR. Dnepropetrovsk Order of Ural and Banner Metallurg Inst  
im I.V. Stalin). 150 copies (KL,32-59, 114)

37

18 (5)  
AUTHORS:

Levin, S. L., Kazachkov, I. P.

SOV/163-59-2-8/48

TITLE:

Change in the Content of the Oxide Inclosures in Metals  
During Melting in the Open-Hearth Furnace (izmeneniye soderzhaniya  
okisnykh vklyucheniy v metalle po knodu martenovskoy plavki)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959,  
Nr 2, pp 43-47 (USSR)

ABSTRACT:

The oxide inclosures in the metal samples which were taken during the melting period up to the initial deoxidation consist mainly of ferric oxide, aluminum oxide, and silicates as well as of small quantities of quartz and spinels. The rate of the carbon combustion in the boiling period exercises a decisive influence on the purification of the metals from oxide inclosures (Table 2). The data of table 2 show that the content of the oxide inclosures is reduced with the increase of the rate of the carbon combustion. The dynamics of the change in the content and in the composition of the oxide inclosures during the deoxidation period of the metal was investigated by an addition of ferromanganese, then ferrosilicon, or only ferromanganese. The content and the composition of the oxide inclosures in the steel samples in

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Change in the Content of the Oxide Inclosures in  
Metals During Melting in the Open-Hearth Furnace

SOV/163-59-2-8/48

dependence on the added aluminum quantity were investigated and the results are given in table 5. Metal samples which were oxidized only with silicon and manganese contain mainly silicate inclosures. If aluminum is added to these samples they contain also aluminum oxide inclosures. Aluminum binds the oxygen of the steel samples in the deoxidation of the steel samples with aluminum, and aluminum occurs as impurification in the inclosures. The determination of the nonmetallic inclosures was carried out by the Engineers N. P. Spasskaya and L. Yu. Vaynshteyn and the Technician L. I. Shcheglova. There are 5 tables and 5 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut  
(Dnepropetrovsk Metallurgical Institute)

SUBMITTED: June 17, 1958

Card 2/2

*KAZACHKOV, I. P.*

## PAGE 1 BOOK EXPLANATION

207/4545

Academy of SSSR. *Kontsevye po statno-khizicheskim otsenivaniym proizvodstva stali*.  
Promstroje vuzov, "metallurg" (Inn of Vuzov in Metallurgy) Moscow, 1960-1961  
All USSR, 1960. 314 p. Errata also inserted. 6,500 copies printed.

Author: M. A.M. Semenov, Corresponding Member, Academy of Sciences USSR; Ed. of  
Publishing House: O.J. Nationality! Tech. Ed.: S.O. Narishkin.

Sponsoring Agency: Academy of Sciences USSR. Institute metallurgical Insel A.I. Baykov.  
Kazachkov Fiziko-tekhnicheskie osnovy proizvodstva stali.

Purpose: This collection of articles is intended for technical personnel, interest-  
ed in present studies and developments of vacuum steelmaking practice and equip-  
ment.

CONTENTS: The book contains information on steel melting in vacuum, desuperheating from  
heat, and vacuum arc furnaces, reduction processes in vacuum, and desuperheating of  
steel and alloys. The functioning of apparatus and equipment, especially  
vacuum furnaces and vacuum booster pumps is also analyzed. Personnel lists are  
included in connection with some of the articles and will appear in  
the Table of Contents. Three articles have been translated from English. Some of the  
translations are: 1. S.V. Butikov. Effect of Vacuum Treatment [in a ladle]  
on the Technological Properties of the Alloy of the Soviet Industries. 127

2. D.S. Kostylev and T.D. Smirnov. Physicochemical Principles of Vacuum-Treatment  
Methods of Treating Steel. 177

## PART IV. IRONSMELTING OF STEEL AND ALLOYS

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|---|
| Horkii, I.M., A.I. Semenov and I.M. Semenov. Vacuum Treatment of Bessem' Steel. 145   |
| Kazachkov, M.P. and G.I. Kostylev. The Effect of Vacuum Treatment in Ladle on the Properties of Bessem' Hall Steel. 151   |
| Kostylev, D.S. and T.D. Smirnov. The Effect of Vacuum Treatment in Ladle on the Workability of Bessem' Cast-iron. The Effect of Vacuum Treatment in Ladle 156   |
| Orlov, G.A., G.G. Strelcov, I.I. Andrianov, Ria Isakova, V.I. Danilov and N.N. Lopatin. Use of Vacuum for Improving the Quality of Alloyed Steels. 166  |
| Rashkovskii, V.I. and T.D. Smirnov. Some Theoretical and Practical Problems of Steel Impurity. 170  |
| Chernov, I.M., A.I. Semenov and T.D. Smirnov. The Effect of Vacuum Treatment on the Quality of Bessem' Steel. [Case work on the treatment by the Bessem' Ironsmelting and Rolling Plant (Omsk Special Steel Metallurgical Institute) and the Bessem' Special Electrical Steel Mill, in cooperation with the participation of engineers V.D. Butikov, M.P. Kazachkov, V.I. Kostylev, I.D. Narishkin, A.M. Nezhivko, G.P. Smirnov, V.I. Smirnov, Yu. Shatalov and G.R. Pavlyuchenko]. 179 |
| Zolotukhin, E.L., I.I. Kostylev, A.I. Chernov, I.M. Semenov, V.G. Chumachenko, P.M. Butikov and V.I. Shchitnikov. Vacuum Treatment of Molten Transformer Steel and of Bessem' Steel. [Case work at the Krasnodar P.G. Plekhanov V.I. Mayak, V.S. Zubakov and P.I. Mikunov participated in the work]. 195  |
| Bogdanov, D.I., I.M. Mal'nikov and M.M. Romashko. Investigation of Vacuum Treatment Steel for Ladles. 205   |
| Butikov, I.M., A.I. Semenov, Gospocheskoye People's Republic, Plizan Plant, I.M. Lushchik, uses of Vacuum for Raising the Quality of Aluminized Alloy. 211  |
| Dobrik, G. [Polish People's Republic, Institute of Iron Metallurgy in Gliwice]. Vacuum Melting and Alloying of Alloyed Carbon Steel. 213  |
| Bogdanov, I.M., I.M. Mal'nikov and S.M. Lepeshikhin. The Effect of Hydrogen and Nitrogen on the Activity of Silicon in Molten Cast Iron. 218  |
| Masharov, I.M., I.M. Semenov and I.M. Semenov. Desulfurization of Molten Iron Alloys in Vacuum. 223   |
| Vishnevskii, A.P. and I.V. Fedorov. Distortion of Nonmetallic Inclusions in the Vacuum Treatment of Steel. 230  |
| Bratsev, I.I., R.R. Kostylev and T.M. Semenov. Investigation of the Structure of Steel Desulfurization in Vacuum by Means of a Mass Spectrometer. 233   |
| Bogdanov, I.M., O.I. Butikov and S.M. Lepeshikhin. The Effect of Hydrogen and Nitrogen on the Activity of Silicon in Molten Cast Iron. 238  |
| Masharov, I.M. Investigation of Gas Liberation and Possibility of Casting<br>in Vacuum. 251   |

183280

32596

S/137/61/000/011/017/123

A060/A101

AUTHORS: Kazachkov, I.P., Khitrik, S.I.

TITLE: Effect of vacuum-treatment of liquid carbonless ferrochrome upon oxide impurities

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 25, abstract 11V172 ("Sb. nauchn. tr. Dnepropetr. metallurg. in-ta", 1958 (1959), no. 37, 145 - 158)

TEXT: Vacuum treatment of Fe-Cr in the ladle makes it possible to obtain ingots with lowered (by ~ 35%) oxide-impurity content. Under vacuuming of the Fe-Cr its purification from suspended oxide impurities is furthered by the more intensive liberation of gases and the consequent stirring of the alloy, which occur at a residual pressure of 250 - 100 mm of mercury. The oxide impurities are borne out into the slag by the rising streams of the alloy and by adhering to the up-floating gas bubbles. The holding of Fe-Cr under vacuum beyond the point at which the noticeable liberation of gas bubbles from it stops, has no effect upon the further purification of the alloy of oxide impurities. The degree of purification of the Fe-Cr of oxide impurities depends chiefly upon their con-

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32596

S/137/61/000/011/017/123  
A060/A101

Effect of vacuum-treatment ...

tent in the state of suspension during the time of vacuuming, and the higher is the Si concentration and the lower the temperature of the Fe-Cr, the more oxide impurities are contained in the alloy in the state of suspension before the vacuuming, and the higher the degree of purification from them of the Fe-Cr during the vacuuming period. As result of the vacuum treatment the Fe-Cr is obtained with a lowered Si and gas content. Under crystallization of the ingots made of this Fe-Cr, less oxide impurities are formed in them and the oxidation-gas cavities present in ordinary Fe-Cr ingots, which are an additional source of oxide contamination of these ingots, are absent. There are 6 references.

V. Gasilina

[Abstracter's note: Complete translation]

Card 2/2

KAZACHKOV, I.P.; PUKHNAREVICH, G.P., kand. tekhn. nauk;  
UL'YANOV, D.P., inzh.

Deoxidation of Bessemer rail steel by means of a complex  
Mn-Fe-Al liquid alloy. Met. i gornorud. prom. no.6:68-69  
N-D '62. (MIRA 17:8)

1. Institut chernoy metallurgii Gosudarstvennogo komiteta  
Soveta Ministrov SSSR po chernoy i tsvetnoy metallurgii (for  
Kazachkov, Pukhnarevich).

L 29256-66 EMT(m)/EMP(t)/ETI IJP(c) JD/JG/JT

ACC NR: AP6019311

SOURCE CODE: UR/0286/65/000/018/0031/0032

INVENTOR: Kazachkov, I. P.; Dekhanov, N. M.; Gavro, L. P.; Semen'kov, V. I.; Kiselev, Yu. Yu. 3/  
B

ORG: none

TITLE: Alloy for alloying steel. Class 18, No. 174649

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 31-32

TOPIC TAGS: chromium containing alloy, alloy steel, manganese containing alloy,  
ferroalloyABSTRACT: In order to shorten the alloying period and reduce loss of elements  
the following alloy and its constituents is proposed: 34-36 Cr, 23-31 Mn, 10-12 Si,  
0.8-12 C, balance--iron. [JPRS] 27 27

SUB CODE: 11 / SUBM DATE: none

Card 1/1 cc

UDC: 669.15'26'74'782

L 29248-65 ENT(m)/EWP(t)/ETI IJP(c) JD  
ACC NR: AP6019312 SOURCE CODE: UR/0286/65/000/018/0032/0032

INVENTOR: Kazachkov, I. P.; Dekhanov, N. M.; Gavro, L. P.; Semen'kov, V. I.;  
Kiselev, Yu. Yu. 34  
B

ORG: none

TITLE: Alloy for decoxidizing steel. (Class 18, No. 174650)

SOURCE: Byulleten' izobreteni i tovarnykh znakov, no. 18, 1965, 32

TOPIC TAGS: alloy, metal purification, steel, manganese base alloy, ferroalloy

ABSTRACT: An alloy for decoxidizing steel is proposed to accelerate the process of melting the reducing agent and contains (in %): 65-72 Mn, 10-12 Si, 4-6 Al, 2.5-3.0 C, balance--iron. [JPRS]

SUB CODE: 11 / SUBM DATE: none

Card 1/1 AC

UDC: 669.183.422: 669.046.558.6

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CIA-RDP86-00513R000721220020-5

KAZACHKOV, L., inzh.-mayor

Our flight-testing station. Av. 1 kosm. 47 no. 6173-76 Je '65.  
(MIRA 18:5)

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CIA-RDP86-00513R000721220020-5"

KAZACHKOV, M. M.

68-12-9/25

AUTHORS: Kazachkov, M.M. and Abozhik, I.N.

TITLE: From Experience of Changing Anchoring Installations on  
Operating Coke Oven Batteries.(Optyt zameny ankerazha deystv-  
uyushchikh koksovykh batarey)

PERIODICAL: Koks i Khimiya, 1957, No.12, pp. 27 - 28 (USSR)

ABSTRACT: The procedure adopted for replacing the armouring frames  
of brickwork and straightening of the anchoring columns on  
operating coke oven batteries of the Chelyabinsk Metallurgical  
Works is outlined. (Chelyabinskiy Metallurgicheskiy zavod).  
There are 3 figures.

ASSOCIATION: Koksokhimmontazh

AVAILABLE: Library of Congress

Card 1/1

KAZACHKOV, M.M.; KOGAN, A.D.

Building a coke oven battery. Prom. stroi. 39 no.7:39-40  
'61. (MIRA 14:7)  
(Coke ovens)

LIKHOGB, Ye.P.; KAZACHKOV, M.M.

Organization of single operations in building coke ovens.  
Koks i khim. no.7:35-37 Jl '61. (MIRA 14:9)

1. Koksokhimstantsiya (for Likhogub). 2. Vsesoyuznyy trest po  
stroitel'stvu i montazhu koksokhimicheskikh zavodov (for Kazachkov).  
(Coke ovens)

KAZACHKOV, P.P.

Communications in automotive and highway departments. Avt.dor.  
18 no.5:22 S'55. (MLRA 9:1)

1. Nachal'nik otdela svyazi Gushosdora.  
(Telephone) (Transportation, Automotive)

KAZACHKOV, R.V.

Measuring the temperature of pistons in high-speed internal  
combustion engines. Izm.tekh. no. 5:25-27 My '60. (MIRA 14:5)  
(Thermocouples)

KAZACHKOV, R.V.

Valve-type pickup for indicating pump strokes of internal  
combustion engines. Izm.tekh. no.9;28-30 S '62. (MIRA 15:11)  
(Electronic instruments)

KAZACHKOV, R.V., inzh.

Study of the effect of a blowout on the thermal stresses in a  
four-cycle pressure-fed diesel engine. Izv. vys. ucheb. zav.;  
energ. 5 no.1:69-76 Ja '62. (MIRA 15:2)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina.  
Predstavlena kafedroy dvigateley vnutrennego sgoraniya.  
(Diesel engines)

KAZACHKOV, R.V., inzh.

Studying the effect of the working process parameters on the  
thermal stresses of high speed diesel engines with supercharging.  
Energomashinostroenie 8 no.5:4-7 My '62. (MIRA 15:5)  
(Diesel engines—Testing)

KAZACHKOV, R.V., inzh.

Studying the gas exchange in a four-stroke diesel engine by  
means of gas analysis. Energomashinostroenie 7 no.11:13~  
16 N '61. (MIRA 14:11)  
(Diesel engines)

KAZACHKOV, R.V., inzh.

Study of the gas exchange of the high-speed four-cycle D6 engine  
by means of the analysis of the gas. Teplovoz.i sud.dvig. no.3:  
218-228 '62. (MIRA 16:2)  
(Diesel engines)

KAZACHKOV, R.V., kand. tekhn. nauk

Investigating the effect of valve lap on the performance of  
pump strokes of a supercharged diesel engine. Avt. prom. 29  
no. 7:7-9 Jl '63. (MIRA 16:8)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina.  
(Diesel engines—Testing)

KAZACHKOV, R.V., kand.tekhn.nauk

Studying heat transmission in a high-speed diesel engine by means  
of forced supercharging. Trakt. i sel'khozmash. 33 no.12:12-14 D  
'63. (MIRA 17:2)

1. Khar'kovskiy politekhnicheskiy institut imeni Lenina.

八、政治思想

Figure 10. The effect of the number of hidden neurons on the error rate.

## CONTINUATION

TOPIC TAGS: diesel engine, thermocouple, heat production, cooling water system/  
min/max diesel engine, PPTV 1 potentiometer, CZP 47 optical galvanometer, EU /  
OBC 100000.

1. *What is the name of the first person you met at the party?*

emi was measured with an EG-1 oscillograph as a null instrument. The thermopiles were made of material AK-4. The results showed that

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L 24112-6

ACCESSION NO. 13-100

The average number of the component is 1.

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NO PEP COPIES

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APPROVED FOR RELEASE: 06/13/2000 CIA-RDP86-00513R000721220020-5"

ACCESSION NR: AP5001141

8/0113/64/0007007/0007/0010 .7

AUTHOR: Kazachkov R V (Candidate of technical sciences)

Tests have shown that in a supercharged diesel engine the piston temperature

Card 17

L 24775-05

ACCESSION NR: AP5v01141

heat - the indicator - sufficient of heat conduction and the cylinder liner. The  
the results indicates that the preliminary estimation of the thermal stress in a piston in a  
supercharged engine requires the use of the relationship between the

temperature of the cylinder liner and the temperature of the piston.

The results of the calculations of the thermal stresses in the piston

are given in the tables of the report.

ANSWERED BY: THE INSTITUTE OF POLYTECHNIC OF KARL MARX CITY, GERMANY

APPROVED:

S. S. M. T.

RECEIVED

NO PEP 6001. 005

OTHER: 000

SHUMANOVА, A.А.; SOKOLOV, B.S.; CHERKASHENINA, Ye.F.; GARSKOVA,  
A.I.; CHULKOV, M.P.; BORISENOK, V.G.; RAIMOVA, S.S.; KULIK,  
O.A.; UDALOVA, L.I.; KAZACHKOV, S.S., otv. red.; ZHDANOVA,  
L.P., red.

[Agroclimatic manual on Omsk Province] Agroklimaticheskii  
spravochnik po Omskoi oblasti. Leningrad, Gidrometeoizdat,  
1959. 227 p.

(MIRA 17:7)

1. Russia (1923- U.S.S.R.) Glavnoye upravleniye gidrometeo-  
rologicheskoy sluzhby. Omskoye upravleniye. 2. Gidrometeoro-  
logicheskaya observatoriya Omskogo upravleniya gidrometeorologicheskoy  
sluzhby (for all except Kazachkov, Zhdanova).

S/120/63/000/001/049/072  
E192/E582

AUTHORS: Yeliseyev, Ye.D. and Kazachkov, V.I.

TITLE: Transistor circuit for the triggering of dekatrons

PERIODICAL: Pribory i tekhnika eksperimenta, no. 1, 1963,  
168 - 169

TEXT: The circuit is shown in Fig. 1. The main merit of this triggering system is that the required pulse of 120 - 150 V is obtained without using transformers. This is achieved by connecting two transistors, type П26 (P26), in such a way that the voltage across either of them does not exceed the permissible limit. The "double" pulse is produced by an integrating network  $R_1 C_1$ . Normally, the two transistors are conducting. When a positive pulse is applied to the base of  $T_1$ , both transistors are cut off and a negative pulse whose amplitude is near to that of  $E_K$  is obtained at the collector of  $T_2$ . It was possible to obtain operating speeds up to 10 kc/s in the circuit of Fig. 1. There are 2 figures.

Card 1/2

## Transistor circuit . . .

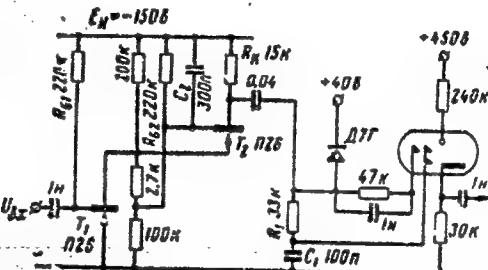
S/120/63/000/001/049/072  
E192/E382

## ASSOCIATION:

Gosudarstvennyy vsesoyuznyy tsentral'nyy nauchno-issledovatel'skiy institut kompleksnoy avtomatizatsii (All-Union State Central Scientific Research Institute of Advanced Automation)

**SUBMITTED:**

January 29, 1962



Card 2/2

Fig. 1:

L 07263-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(1) JR/GD

ACC NR: AT6025304

SOURCE CODE: UR/0000/66/000/001/0036/0048

AUTHOR: Plyutinskiy, V. I.; Kazachkov, V. I.; Vishnyakov, V. I.

30

ORG: none

B+/

TITLE: Certain problems of optimal control of nuclear reactors

19

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Upravleniye yadernymi energeticheskimi ustanovkami (Control of nuclear power plants), no. 1. Moscow, Atomizdat, 1966, 36-48

TOPIC TAGS: nuclear reactor control, optimal control, reliability, reactor neutron flux

ABSTRACT: The authors describe a control system which makes use of two means of increasing control-system reliability, namely increase of the reliability of the elements themselves and the design of reliable systems made up of unreliable elements. This is done by using a relay-input regulator whose output signal guarantees sufficient speed of the control process in the absence of self oscillations. Such a system is based on a six-group solution of the reactor neutron kinetics. Block diagrams of regulators for the neutron flux, for the coolant temperature, are presented in the single-channel and in the three-channel ("two out of three") operating versions. It is claimed that a tentative reliability of approximately 0.93 can be attained for the

Card 1/2

L 07263-67

ACC NR: AT6025304

three-channel regulator. Another advantage of the three-channel regulator is that faulty operation of individual channels can be readily detected. Orig. art. has: 8 figures and 18 formulas

SUB CODE: 18/ SUBM DATE: 27Dec65/ ORIG REF: 002/ OTH REF: 001

Card 2/2 *fla*

L 07264-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) JR/GD  
ACC NR: AT6025311 SOURCE CODE: UR/0000/66/000/001/0096/0105

AUTHOR: Kazachkov, V. I.

30  
B71

ORG: none

TITLE: Comparative estimate of the operation of a pulsed and current measuring channels in the control and protection system of a nuclear reactor 19

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Upravleniye yadernymi energeticheskimi ustanovkami (Control of nuclear power plants), no. 1. Moscow, Atomizdat, 1966, 96-105

TOPIC TAGS: reactor neutron flux, nuclear reactor control, neutron counter

ABSTRACT: The article is devoted to a comparison of the errors arising in commonly used neutron counters for reactors and due to  $\gamma$  radiation, statistical errors in measurement of small neutron flux levels, dynamic errors in measurement of low neutron fluxes, the operating range, and the complexity of electronic apparatus. The current type (where the ionization chamber pulses are first integrated by a load resistance and then amplified and recorded) and the pulse type (where the pulses are amplified and counted) were considered. The comparison is based on a statistical analysis of the possible errors and on the presently attained maximum sensitivities of the two types of instruments. Pulsed apparatus, when used with a time constant of 5 sec, can measure a minimum of 1 neutron/cm<sup>2</sup>sec. Current apparatus can be used during start up purposes with a range of more than six orders of magnitude, whereas pulsed apparatus

Card 1/2

L 07264-67  
ACC NR: AT6025311

can be used for automatic starting only within approximately four or five order of magnitude. An increase in the range of the measurement of current type apparatus is possible, although current leakage through the insulation limits this range slightly. Under real operating conditions the sensitivity of current apparatus is  $10^5$  neutrons/cm<sup>2</sup>sec. Automatic start of the power reactor with the aid of current apparatus is safe in practice during the first two hours after the start, if the "null" neutron current is lower than  $10^5$  neutrons/cm<sup>2</sup>sec. If compensation is provided for the  $\gamma$  quantum level, then current apparatus can be used for safe starting of a power reactor from a level of 100 - 1000 neutrons/cm<sup>2</sup>sec. Orig. art. has: 1 figure and 19 formulas.

SUB CODE: 18/ SUBM DATE: 27Dec65/ ORIG REF: 002

Card 2/2 *sl*

L 07260-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) JR/GD

ACC NR: AT6025312

SOURCE CODE: UR/0000/66/000/001/0106/0115

AUTHOR: Kazachkov, V. I.; Klokova, T. F.

4/

ORG: none

B+/  
14

TITLE: Logarithmic amplifier in the control system of a nuclear reactor /9

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Upravleniye yadernymi energeticheskimi ustanovkami (Control of nuclear power plants), no. 1. Moscow, Atomizdat, 1966, 106-115

TOPIC TAGS: nuclear reactor control, amplifier stage, volt ampere characteristic

ABSTRACT: The authors consider certain characteristics of a triode logarithmic amplifier which is used extensively in devices for control, protection, and automatic starting of reactors (Fig. 1). Methods of determining such characteristics as the input resistance and the time constant of the input circuit are described, and the volt-ampere characteristic is presented for different resistances connected in parallel with its input. An analysis of the circuit operation leads to the following conclusions: 1. The input resistance of the logarithmic amplifier changes appreciably with the measured current. 2. To eliminate errors due to the deformation of the logarithmic-amplifier characteristic at small input currents, it is necessary to apply an initial bias current at the input circuit. 3. The statistical error of logarithmic amplifiers is independent of the measured current. 4. The dynamic error of the logarithmic amplifier does depend on the measured current, the reactor period, or the

Card 1/2

L 07260-67

ACC NR: AT6025312

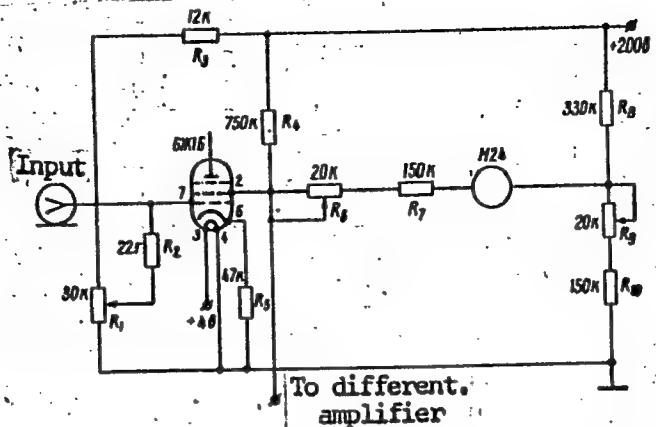


Fig. 1. Schematic diagram of logarithmic amplifier

input capacitance employed. Orig. art. has: 8 figures and 8 formulas.

SUB CODE: 18, 09/ SUBM DATE: 27Dec65/ ORIG REF: 003/ OTH REF: 001

Cord 2/2 (a)

L 07261-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) JR/GD  
ACC NR: AT6025313 SOURCE CODE: UR/0000/66/000/001/0116/0129

AUTHOR: Kazachkov, V. I.

ORG: none

TITLE: Differentiating amplifier in the control system of a nuclear reactor

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Upravleniye yadernymi energeticheskimi ustanovkami (Control of nuclear power plants), no. 1. Moscow, Atomizdat, 1966, 116-129

TOPIC TAGS: automatic control design, nuclear reactor control, amplifier stage, nuclear safety, reactor neutron flux

ABSTRACT: The author describes the requirements that must be satisfied by a differentiating amplifier when used in different sections of the nuclear-reactor control system, such as the channel for measuring the reactor period, the channel for reactor protection, and in other parts of the system. Since such an amplifier must supply signals to indicating instruments, regulating devices, protective circuits, and signalization circuits, the author analyzes the requirements imposed on the various signals. The nature of the optimal input signal that would provide the most suitable output signals is evaluated and the parameters of a suitable differentiating network are derived. A detailed description is presented of the differentiating amplifier used at medium and high values of neutron flux, with a signal received from a logarithmic amplifier. This amplifier can operate from differential amplifiers having a

50  
B+1  
19

Card 1/2

L 07261-67

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slope from 2 to 10 v/decade, and stays stable at temperatures from 10 to 40°C. Orig. art. has: 4 figures and 24 formulas.

SUB CODE: 18, 09/ SUBM DATE: 27Dec65/ OTH REF: 002

Card 2/2 (a)

TSFAS, B.S., dotsent, kand.tekhn.nauk; KAZACHKOV, V.S., student;  
KHARITONOV, V.D., student

Closing stresses in Benn's lever-type friction clutches.  
Sbor.dokl.Stud.nauch.ob-va Fak.mekh.sel'.Kuib.sel' khoz.inst.  
no. 1:109-115 '62. (MIRA 17:5)

1. Kuybyshevskiy sel'skokhozyaystvennyy institut.

KAZACHKOV, V.S., student; TSFAS, B.S., dotsent, nauchnyy rukovoditel'  
raboty

Causes for the breakdown of a hydraulic press. Sbor.dokl.Stud.  
nauch.ob-va Fak.mekh.sel'. Kuib. sel'khoz.inst. no. 1:131-133  
'62. (MIRA 17:5)

1. Kuybyshevskiy sel'skokhozyaystvennyy institut.

KAZACHKO", YE. A.

USSR/Metals - Iron, Diffusion

Nov 51

"Diffusion of Elements in Molten Iron," B. V. Stark, Corr Mem, Acad Sci USSR, Ye. V. Chelishchev, Ye. A. Kazachkov

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 11, pp 1689-1695

Expts demonstrated possibility of exptl detn of diffusion coeffs of various elements in liquid steel, iron and alloys. Application of special ceramic device eliminated convective mixing of liquid-metal—phys phenomenon which usually complicates investigation of diffusion processes. This factor makes results obtained much nearer to actual values.

119T100

BCS

*Refractories*

1346. The production of magnesite crucibles for the melting of metal in Tammann furnaces.  
—E. B. CHIBAICHYU and E. A. KAZACHKOV (Ognyopory, 16, 472, 1951). To avoid intensive accumulation of C in metal melted in Tammann furnaces when the expt. requires that the metal be kept in the crucible for 1-1.5 hr., magnesite crucibles of a special shape are used. These crucibles are made of powder obtained by crushing magnesite bricks, and can withstand 3-7 melts. The manufacturing process is described in detail. (3 figs.)

KRAMAROV, A.D., professor, doktor tekhnicheskikh nauk; KAZACHKOV, Ye.A., re-daktor; MILLER, A.I., redaktor; VAYNSHTEYN, Ye.B., tekhnicheskiy re-daktor.

[Physicochemical processes in steel production] Fiziko-khimicheskie protsessy proizvodstva stali. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 200 p. (MLR 7:12)  
(Steel--Metallurgy)

FILIPPOV, Sergey Ivanovich; ARSENT'YEV, Petr Pavlovich; YAZACHKOV, Ye.A.,  
redaktor; SHAROPIN, V.O., redaktor; ATTOPOVICH, M.K., tekhnicheskiy  
redaktor.

[Experimental work on a theory of metallurgical processes] Eksperimental'nye raboty po teorii metallurgicheskikh protsessov. Moskva,  
Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii,  
1955. 119 p.  
(Metallurgy)

POYARKOV, Aleksey Mikhaylovich; BOYARSHINOV, V.A., redaktor; KAZACHEKOV, V.A.,  
redaktor; NETESIN, A.Ye., redaktor; OYKS, G.N., redaktor; LIBERMAN,  
S.S., redaktor; ANDREYEV, S.P., tekhnicheskiy redaktor.

[The production of steel] Proizvodstvo stali. Khar'kov, Gos.nauchno-  
tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955, 519 p.  
(Steel) (MIRA 8:4)

БИЛУЧАКОВ, Ю.Н.

BORNATSKIY, Ivan Ivanovich, kandidat tekhnicheskikh nauk; KAZACHKOV,  
Ye.A., redaktor; SHOROPIN, V.D., redaktor; ATTOPOVICH, M.I.,  
tekhnicheskiy redaktor.

[Desulfuration of Marten steel] Desul'firatsiya martenovskoi  
plavki. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i  
tsvetnoi metallurgii, 1955. 113 p. (MLRA 8:12)  
(Steel--Heat treatment)

YAVOYSKIY, Vladimir Ivanovich, doktor tekhnicheskikh nauk; KAZACHKOV,  
Ye.A., redaktor; SHAROPIN, V.D., redaktor; EVENSON, I.M.,  
tekhnicheskiy redaktor.

[Gases and occlusions in steel ingots] Gazy i vklucheniya v  
stal'nom slitke. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po  
chernoi i tsvetnoi metallurgii, 1955. 247 p. (MLRA 8:12)  
(Steel--Analysis)

FILIPPOV, Sergey Ivanovich; KAZACHKOV, Ye.A., redaktor; ZINGER, S.L.,  
redaktor izdatel'stva; PETROVA, N.S., tekhnicheskiy redaktor

[Theory of the process of steel decarburization] Teoriia protsessa  
obezuglerozhivaniia stali. Moskva, Gos. nauchno-tekhn. izd-vo  
lit-ry po chernoi i tsvetnoi metallurgii, 1956. 166 p. (MLRA 9:9)  
(Steel--Metallurgy)

ROSTOVTSEV, Sergey Tikhonovich; Yesin, O.A., professor, doktor tekhnicheskikh nauk, retsenzent; KONDAKOV, V.V., professor, doktor tekhnicheskikh nauk, retsenzent; KAZACHIKOV, Ye.A., redaktor; SHAROPIN, V.D., redaktor; VAYNSHTEYN, Ye.B., tekhnicheskiy redaktor.

[A theory of metallurgical processes] Teoriia metallurgicheskikh protsessov. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvernoi metallurgii, 1956. 515 p. (MLRA 9:5)  
(Metallurgy)

KAZACHEKOV Ye. A.

FILIPPOV, Sergey Ivanovich; ABSENT'YEV, Petr Pavlovich; YAKOVLEV,  
Valentin Viktorovich; POLYAKOV, A.Yu., retsenzent; KAZACHEKOV,  
Ye.A., nauchnyy red.; YABLONSKAYA, L.V., red.izd-va;  
ISLAM'TYEVA, P.G., tekhn.red.

[Converter smelting of steel] Konverternaya plavka stali.  
Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi  
Metallurgii, 1959. 432 p. (MIRA 12:6)  
(Smelting) (Steel--Metallurgy)

FILIPPOV, Sergey Ivanovich; ARSENT'YEV, Petr Pavlovich; YAKOVLEV,  
Valentin Viktorovich; POLYAKOV, A.Yu., retsenzsent; KAZACHKOV,  
Ye. A., nauchnyy red.; YABLONSKAYA, L.V., red.izd-va; ISLENT'YEVA,  
P.G., tekhn.red.

[Converter smelting of steel] Konverternais plavka stali. Moskva,  
Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii,  
1959. 432 p. (MIRA 12:10)

(Bessemer process)

KAZACHKOV, YE. A.

Е.А.Казаков

Книгота оценкой оторвала при  
изучении концентрированного в зоне  
марганцевых зон.

А.П.Примак  
О.Д.Медведев  
Л.М.Бочин  
Ю.С.Горбачев

Влияние отрывания разности на  
свойства стали в процессе прокатки  
измен.

М.В.Дашковский  
В.Д.Харитонова  
Э.Н.Титова

Влияние удельной массы на структуру  
марганцовистого троиха.

С.И.Сорбет  
Е.А.Казаков  
В.А.Макогонов

Зависимость с пределом прочности  
пружин стальном слитке рулонной  
спецификации.

Е.А.Казаков  
С.И.Сорбет

Технологичность удаления загрязнен-  
ных проката стальных слитков.

Ю.П.Соловьев  
В.А.Лебедев  
В.И.Гуменко

Борьба с неправильными дефектами  
из стальных слитков.

А.К.Плещеников  
В.Г.Лебедев  
В.И.Лебедев  
В.И.Гуменко

Несправление рабочих сталей в пред-  
прогрессивных заготовках сечением  
350x350 мм.

Н.Н.Гуменко  
А.А.Лебедев  
А.И.Плещеников  
В.И.Гуменко

Изменение времена затвердевания  
при спиралевидном слитке сечением  
350x350 мм.

report submitted for the 5th Physical Chemical  
Conference on Steel Production, Moscow-- 30 Jun 1959.

18(3)

AUTHOR:

Kazachkov, Ye. A.

SOV/163-59-2-4/48

TITLE:

The Content of Oxygen in the Metal During Melting in the  
Recirculating Furnace (Soderzhaniye kisloroda v metalle po  
khodu plavki v retsirkulyatsionnoy pechi)

PERIODICAL:

Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959,  
Nr 2, pp 20 - 26 (USSR)

ABSTRACT:

To intensify the melting process in the open-hearth furnace, the air is usually enriched with 25-30% oxygen. To attain a higher enrichment, M. A. Glinkov (Refs 1 and 2) suggested a recirculating principle, the successful development of which rendered possible the building of furnaces with industrial capacity. The resulting rapid combustion of carbon, the increased content of FeO in the slag, made suspect that the metal received a too high content of oxygen. Therefore, the content of oxygen in the metal was investigated in a 10-ton recirculating furnace. The taking of the sample is described. The analysis of the steelwool bored out of the sample with respect to oxygen was carried out by the alumina method at the Novo-Tul'skiy metallurgicheskiy zavod (Novo-Tul'skiy Metallurgical Works). The present paper comprises the result

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The Content of Oxygen in the Metal During Melting  
in the Recirculating Furnace

SOV/163..59..2..4/48

of 52 melts. Figure 1 shows the content of oxygen in the metal in dependence on the carbon content. Figure 2 indicates the excess of oxygen over the quantity of oxygen which is in equilibrium with the carbon. Figure 3 shows the oxygen content at different concentrations of FeO and carbon. The results can be explained by the new theory of steel decarbonization by Professor S. I. Filippov (Ref 11). The lower limit of the oxygen content follows the equilibrium curve developed in theory and is determined by the carbon content of the metal. The upper limit could not be exactly determined, it depends on the ratio of the reaction constants contained in Filippov's formula. Up to a carbon concentration of 0.2-0.3%, the oxygen excess rather remains at the same height. At a lower carbon content, the oxygen excess increases considerably, since at this low carbon concentration the course of the decarbonization reaction is rendered more difficult. Between 0.3 and 2.0% C, the oxygen concentration does not depend on the FeO-content of the slag. This is explained by the fact that, under given conditions, a

Card 2/3

The Content of Oxygen in the Metal During Melting  
in the Recirculating Furnace SOV/163-59-2-4/48

considerable resistance to oxygen transmission arises in the metal. At a lower carbon concentration, however, the oxygen content depends on the FeO-content; here, the resistance of the metal to oxygen transmission is low. A dependence between the combustion rate of the carbon and the acidification of the metal (Fig 4) could not be ascertained. There are 4 figures and 11 Soviet references.

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut  
(Zhdanov Metallurgical Institute)

SUBMITTED: August 1, 1958

Card 3/3

18(3)

AUTHORS: Kazachkov, Ye. A., Sviridenko, F. F. SOV/163-59-2-7/48

TITLE: The Temperature Conditions of the Tank in the Period of Basic Addition in Dephosphorization (Temperaturnyy rezhim vanny v period dovodki pri fosforistom peredele)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 2, pp 38 - 42 (USSR)

ABSTRACT: In the processing of cast iron with a high phosphorus content, the principal quantity of phosphorus is eliminated from the cast iron during the melting process. The slag produced is poured off, and an admixture of ore, bauxite, lime and scale is added to eliminate the remaining phosphorus. The addition of these large quantities leads to a temperature drop from  $1565^{\circ}$  to  $1525^{\circ}$ , as is shown in figure 1, which indicates the average values of 50 measurements. If the temperature was too low before the admixture, an undercooling is generated (Fig 2), the carbon burns too slowly, and the metal becomes inferior in quality, as is proved by the statistic evaluation of 294 rail-steel melts. Figure 3 shows the dependence of the temperature rise on the combustion rate of carbon; figure 4

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The Temperature Conditions of the Tank in the Period SOV/163-59-2-7/48  
of Basic Addition in Dephosphorization

shows the influence of the thickness of the slag layer on  
the carbon combustion and the temperature rise. The pouring-off  
of the slag speeds up the carbon combustion. Although the  
temperature must not rise too much to avoid a reduction of the  
 $P_2O_5$ , it should nevertheless be kept between  
 $1550 - 1570^{\circ}$  in the melting process of rail steel.  
There are 4 figures and 5 Soviet references.

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut  
(Zhdanov Metallurgical Institute)

SUBMITTED: September 15, 1958

Card 2/2

SOV/130-59-1-8/21

AUTHORS: Skoblo S.Ya., Kazachkov Ye.A., Pereverzeva Ye.G.,  
Kiryushkin Yu.I., Strakhov V.G., Sviridenko F.F.,  
Bul'skiy M.T., and Alimov A.G.

TITLE: Quality of a Rail-Steel Ingot weighing 9.75 Tonnes  
(Kachestvo slitka rel'sovoy stali vesom 9.75 t)

PERIODICAL: Metallurg, 1959, Nr 1, p 19 (USSR)

ABSTRACT: At the "Azovstal'" works rail-steel ingot weight has been increased for 6.6 to 9.75 tonnes to increase casting-pit capacity and improve the utilization of rolling mill capacity. The authors give a brief description of the results of comparative investigations of large and small ingots. The quality was evaluated from sulphur prints of longitudinal ingot sections, from the macro-structure (with deep etching) of transverse strips, differences in the etching of samples from different zones of the ingot and distribution of segregated impurities and non-metallic inclusions in the ingot. Among the conclusions drawn are that the two ingot types are equal in physical,

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SOV/130-59-1-8/21

Quality of a Rail-Steel Ingot weighing 9.75 Tonnes

structural and chemical heterogeneity, the non-metallic inclusions in the large ingot do not exceed those in a sound 4.0-tonne rail-steel ingot; the amount of non-metallic inclusions, which greatly affect the mechanical properties, can be reduced by careful preparation of runner and ladle.

ASSOCIATION: Zhdanovskiy metallurgicheskiy institut (Zhdanov metallurgical institute) and the "Azovstal'" works

Card 2/2

SKOBLO, S.Ya.; KAZACHKOV, Ye.A.; STRAKHOV, V.G.

Use of transparent, fusible melts for modeling the ingot solidification process. Izv. vys. ucheb. zav.; chern. met. no.1:41-46 '60.  
(MIRA 13:1)

1.Zhdanovskiy metallurgicheskiy institut.  
(Steel ingots--Models) (Solidification)

KAZACHKOV, Ye. A.

SJ

PHASE I BOOK EXPLOITATION

sov/5556

Moscow. Institut stali.

Novoye v teorii i praktike proizvodstva martenovskoy stali (New [Developments] in the Theory and Practice of Open-Hearth Steelmaking) Moscow, Metallurgizdat, 1961. 439 p. (Series: Trudy Mezhdunarodnogo nauchnogo soveshchaniya) 2,150 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR. Moskovskiy institut stali imeni I. V. Stalina.

Eds.: M. A. Glinkov, Professor, Doctor of Technical Sciences, V. V. Kondakov, Professor, Doctor of Technical Sciences, V. A. Kudrin, Docent, Candidate of Technical Sciences, G. N. Oyks, Professor, Doctor of Technical Sciences, and V. I. Yavovskiy, Professor, Doctor of Technical Sciences; Ed.: Ye. A. Borko; Ed. of Publishing House: N. D. Gromov; Tech. Ed.: A. I. Karasev.

PURPOSE: This collection of articles is intended for members of scientific institutions, faculty members of schools of higher education, engineers concerned with metallurgical processes and physical chemistry, and students specializing in these fields.

Card 1/14

New [Developments] in the Theory (Cont.)

SOV/5556

COVERAGE: The collection contains papers reviewing the development of open-hearth steelmaking theory and practice. The papers, written by staff members of schools of higher education, scientific research institutes, and main laboratories of metallurgical plants, were presented and discussed at the Scientific Conference of Schools of Higher Education. The following topics are considered: the kinetics and mechanism of carbon oxidation; the process of slag formation in open-hearth furnaces using in the charge either ore-lime briquets or composite flux (the product of calcining the mixture of lime with bauxite); the behavior of hydrogen in the open-hearth bath; metal desulfurization processes; the control of the open-hearth thermal melting regime and its automation; heat-engineering problems in large-capacity furnaces; aerodynamic properties of fuel gases and their flow in the furnace combustion chamber; and the improvement of high-alloy steel quality through the utilization of vacuum and natural gasses. The following persons took part in the discussion of the papers at the Conference: S.I. Filippov, V.A. Kudrin, M.A. Glinkov, R.P. Kam, V.I. Yavoyasiky, O.E. Oyks and Ye. V. Chelishchev (Moscow Steel Institute); Ye. A. Kazachkov and A. S. Kharitonov (Zhdanov Metallurgical Institute); N.S. Milkayets (Institute of Chemical Metallurgy of the Siberian Branch of the Academy of Sciences USSR); A.I. Stroganov and D. Ya. Povolotskiy (Chelyabinsk Polytechnic Institute); P.V. Umrikhin (Ural Polytechnic Institute); I.I. Fomin (the Moscow "Serp i molot" Metallurgical Plant); V.A. Fuklev (Central Asian Polytechnic Institute).

Card 2/14

New [Developments] in the Theory (Cont.)

SOV/5556

and M.I. Beylinov (Night School of the Dneprodzerzhinsk Metallurgical Institute).  
References follow some of the articles. There are 268 references, mostly Soviet.

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Principal Trends in the Development of Scientific Research in Steel  
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Institute]. Regularity Patterns of the Kinetics of Carbon Oxidation  
in Metals With Low Carbon Content  
[V. I. Antonenko participated in the experiments]

15

Levin, S. L. [Professor, Doctor of Technical Sciences, Dnepropetrovskiy  
metallurgicheskiy institut - Dnepropetrovsk Metallurgical Institute].

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KAZACHKOV, Ye. A.

PHASE I BOOK EXPLOITATION

SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th,  
Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii  
(Physicochemical Bases of Steel Making; Transactions of the  
Fifth Conference on the Physicochemical Bases of Steelmaking)  
Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted.  
3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni  
A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy  
of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg.  
Tech. Ed.: V. V. Mikhaylova.

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113

Physicochemical Bases of (Cont.)

SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

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Physicochemical Bases of (Cont.)

SOV/5411

Panov, A. S., and P. N. Perchatkin. Comparison of the Desulfurizing Capacity of Oxides During the Melting Period in Processing Low-Manganese Pig Irons

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Shnayev, Ya. A., A. G. Kotin, and A. G. Derfel<sup>1</sup>. Accelerating the Open-Hearth Process in the Preparation of the Charge (Pig Iron and Loose Materials)

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Shnayev, Ya. A., A. I. Sukachev, and A. G. Kotin. Accelerating the Slag Formation and Melting Processes by Blowing Oxygen Into the Bath During the Meltdown Period

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Kazachkov, Ye. A. Kinetics of the Oxidation of Low-Concentrated Carbon in the Open-Hearth Bath

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Zorin, O. D., and A. Ye. Khlebnikov. The Kinetic Decarburization

Card 5/16

S/130/61/000/005/003/005  
A006/A101

AUTHORS: Sviridenko, F. F., Kazachkov, Ye. A., Vasil'kovskaya, N. P., Lesenko, I. I.

TITLE: Riser with an air gap in the wall

PERIODICAL: Metallurg, no. 5, 1961, 15 - 18

TEXT: Risers used at "Azovstal'" for delayed cooling of feed head metal, are lined with chamotte bricks. The lining is 120 mm thick. Heat insulating conditions can be improved by employing insulated bricks, and the best means of insulation for this purpose is air. Investigations were made to use the heat insulating properties of an air gap in the lining of risers. The use of shaped bricks, which is the simplest method employed at the KMK, was not possible at Azovstal' due to the lack of a ceramic shop. Therefore, standard brick dimensions and shapes had to be employed. The existing design of risers was modified by two methods: 1. In the shell of a conventional riser, 8 - 10 mm thick steel sheets were inserted and fastened by electric welding process in such a manner, that an internal shell was formed that was separated from the external shell by a 70 mm wide gap. The gap was lined with chamotte bricks. 2) A special riser was employed with horizontal ribs in the center of the shell height, supporting

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S/130/61/000/005/003/005  
A006/A101

Riser with an air gap in the wall

the bricks. Between the brick lining and the shell there was a 60 mm wide air gap. Heat balances were drawn up for conventional and experimental risers and for this purpose the distribution of temperature along the wall thickness of the risers was determined. Heat losses in the risers are characterized as follows:

	Riser with conventional lining	Riser with air gap
Total heat losses through the feed head at the end of ingot solidifying, in %:	100	59
of which:		✓
losses to the surrounding medium	22	45
absorbed by the refractories of the risers	56	24
absorbed by the riser shell	22	31

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A006/A101

Riser with an air gap in the wall

Improved heat insulation reduces the metal volume in the feed head and increases the ingot weight. The upper section of the ingot which is most contaminated with non-metallic impurities, can thus be cut off. Experimental castings made with the new risers showed satisfactory results. However, their large-scale production was impeded by the low stability of the lining. Therefore, a new variant of the risers was designed (Figure 3) where the uniform suspension of the ingot over the whole perimeter of the mold and riser butt line, is assured by an excess of the cross section of the riser (885 x 790) over that of the mold (865 x 770). Grooves, 50 mm wide, in the riser shell prevent the falling out of the upper rows of the lining, and 50 mm - diameter apertures are provided in the walls for the elimination of gases from internal cavities. Experiments showed that risers lined with straight bricks were not less stable than those lined with shaped bricks. Their use will reduce rejects due to contaminations with non-metallic impurities. There are 3 figures.

ASSOCIATION: Zavod "Azovstal'" (Azovstal' Plant); Zhdanovskiy metallurgicheskiy institut (Zhdanov Metallurgical Institute).

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Riser with an air gap in the wall

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A006/A101

Figure 3:

Riser with an air gap in the wall

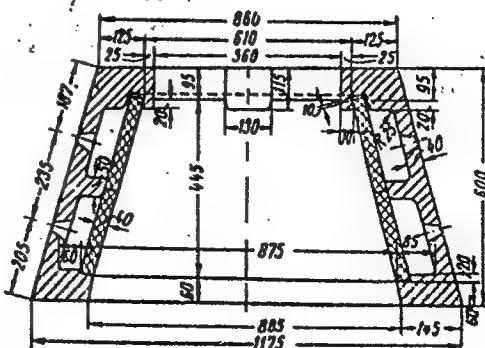


Рис. 3. Пробывальная надставка с воздушным зазором в стенке

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S/137/62/000/003/022/191  
A006/A101

AUTHORS: Kazachkov, Ye. A., Skoblo, S. Ya., Kiryushkin, Yu. I., Dorokhov,  
V. I., Sapelkin, N. F.

TITLE: Investigating the thermal work of molds for forging ingots

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 44, abstract 3V268  
("Sb. nauchn. tr. Zhdanovsk. metallurg. in-t", 1960, no. 6, 68-109)

TEXT: The thermal work of molds was investigated during the solidification of three different sizes of forging ingots, cast into octahedral through-molds with a floating riser. One of the ingots weighing 24.5 tons was cast into a mold at top position of the floating riser; the second ingot weighing 24.5 tons - at a lower position of the floating riser, and the third ingot, weighing 42.5 tons, at a considerable immersion of the floating riser into the mold. All the ingots were cast from grade 55X (55Kh) steel from different heats, melted in basic open hearth furnaces. The temperature distribution at various spots across the mold walls was determined during the solidifying of the ingot from readings of 24 - 26 thermocouples, which were placed on the mold walls at different depths and several height levels. Moreover, during the solidification process, periodic

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Investigating the thermal work ...

S/137/62/000/003/022/191  
A006/A101

measurements were taken of the air temperature in the lower, middle and top section of the caisson, where the molds were placed. Data on the temperature distribution in the mold walls were used to determine the amounts of heat, its storing at any moment of time, and the amount of heat transferred to the surrounding medium by convection or radiation. On the basis of data on heat losses of the ingots, the advance of the crystallization front in the ingots during their solidification was established. The heat balance structure of the ingot solidification process was revealed. It was established that at the moment of completed solidification with a heavier weight of the ingot there is a rapid increase in the fraction of heat, transferred to the surrounding medium by radiation from the mold surface, and a decrease in the fraction of heat stored by the mold walls.

P. Arsent'yev

[Abstracter's note: Complete translation]

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18.7/20  
AUTHORS:

TITLE:

PERIODICAL: Izvestiya vystavok i nauchno-tekhnicheskikh zhurnalov SSSR  
06/13/2000 CIA-RDP86-000/003/002/011  
Skoblo, S.Ya., Kazachkov, Ye.A., Kiryushin, Yu.I., Sapekin, N.F.  
solidification of the kinetics of the axial part of an ingot by the  
method of differential probing

TEXT: A method of probing of ingots during their solidification and some results on the kinetics of the axial part of an ingot by the method of differential probing. Chernaya metallurgiya, no.3, 1962, 53-59. A brief survey of the height to mean cross-section ratio of the height to mean cross-section of the usual cross-section) are described. After solidification time, additions of radioactive element at given time intervals during the solidification process, probing with a sufficient information on the solidification process, probing with a comparison of the results obtained by various methods. Moreo-

Card 1/3

SKOBLO, S.Ya.; KAZACHKOV, Ye.A.; STRAKHOV, V.G.; KIRYUSHIN, Yu.I.;  
SAPELKIN, N.F.

Studying the kinetics of the solidification process in the  
axial part of an ingot by differentiated probing. Izv. vys.  
ucheb. zav.; chern. met. 5 no.3:53-59 '62. (MIRA 15:5)

1. Zhdanovskiy metallurgicheskiy institut.  
(Steel ingots--Testing) (Solidification—Testing)

SKOBLO, S.I. [Skoblo, S.Ya.]; KAZACIKOV, E.A. [Kazachkov, Ye.A.]; STRAHOV, V.G. [Strakhov, V.G.]; KIRIUSIN, I.I. [Kiryushin, Yu.I.]; SAPELKIN, N.F.

Studies on the kinetics of the solidification process in the axial part of the ingot through the method of differentiated soundings. Analele metalurgie 16 no.4:36-43 O-J '62.